

**I/WE CLAIM:**

1. A method for positioning a mammal or part thereof for optical imaging, the method comprising:
  - i) obtaining a digital image of a surface of the mammal comprising a ROI;
  - ii) defining the ROI;
  - iii) registering coordinates of the ROI with an optical imaging system having collection optics components;
  - iv) positioning the mammal relative to an object plane of the collection optics based on said registered coordinates of said ROI such as to image the ROI.
2. The method as claimed in claim 1, wherein the step of obtaining a digital image comprises:
  - i) positioning the mammal on a support so as to expose the surface of the mammal comprising the ROI to a field of view of a camera; and
  - ii) acquiring a digital image of the exposed surface.
3. The method as claimed in claim 2, wherein the step of defining the ROI comprises:
  - i) displaying the image of the surface comprising the ROI on a display;
  - ii) selecting the ROI to digitally record coordinates of the ROI; and
  - iii) storing the digitalized coordinates of the ROI in a computer.
4. The method as claimed in claim 3, wherein the step of registering the ROI with an optical imaging system comprises programming the optical imaging system to acquire optical data from the ROI defined by the digitalized coordinates.

5. The method as claimed in claim 4, further comprising the step of selecting a height of the mammal relative to the object plane of the collection optics at which the imaging system is focused for acquiring optical data.

6. The method as claimed in claim 5, wherein the step of selecting the height of the mammal comprises:

- i) obtaining a digital image of a surface of the mammal defined by a plane substantially perpendicular to the plane of the surface of the mammal comprising the ROI;
- ii) defining a plane corresponding to a desired object plane relative to the mammal at which the imaging system is focused ;
- iii) digitally recording coordinates of the defined object plane;
- iv) storing the coordinates of the defined object plane;
- v) registering the coordinates of the object plane with the imaging system; and
- vi) positioning the mammal relative to the collecting optics such that the object plane comprises the ROI.

7. The method as claimed in claim 1 wherein a plurality of images of the ROI are obtained over time and wherein the stored coordinates of the defined plane and of the ROI are used for positioning the mammal at substantially the same position for each image.

8. The method as claimed in claim 7 wherein fiducial marks are inscribed on the surface of the mammal in the ROI to provide reference for positioning the mammal at substantially the same position for each image and for selecting substantially the same ROI.

9. A method for imaging a mammal or part thereof using an optical imaging system, the method comprising:

- i) placing said animal on a supporting means;
- ii) defining an ROI;
- iii) obtaining a 3 dimensional (3 D) contour of said animal comprising at least said ROI;
- iv) registering coordinates of said ROI and 3 D contour with an optical imaging system having collection optics components;
- v) imaging said ROI of the mammal placed on said supporting means using said optical imaging system wherein said coordinates of said 3 D contour are used in said generation of the image of said ROI.

10. The method as claimed in claim 9 wherein said step of obtaining a 3 D contour comprises:

- i) scanning said ROI with a laser beam directed substantially perpendicularly onto said ROI; and
- ii) simultaneously obtaining an image of said beam at said surface of the mammal.

11. A system for positioning a mammal for optical imaging, the system comprising:

- i) a mammal supporting means;
- ii) a camera for digitally imaging a surface of the mammal comprising a ROI;
- iii) storage means for storing the digital image;
- iv) a display operationally linked to the storage means for displaying the stored digital image;
- v) a user interface to define the ROI; and
- vi) a registering means for registering the defined ROI with an optical imaging system.

12. The system as claimed in claim 11, wherein the mammal supporting means is a tray.
13. The system as claimed in claim 12, wherein the tray is moveable relative to the optical imaging system.
14. The system as claimed in claim 12, wherein the tray is a heated tray.
15. The system as claimed in claim 13 wherein the tray comprises a motion sensor to detect movement of the mammal during imaging.
16. The system as claimed in claim 13 wherein the tray comprises one or more physiological sensor to monitor desired physiological states in the mammal.
17. The system as claimed in claim 12, wherein the system further comprises a second camera positioned such as to provide a field of view substantially perpendicular to the field of view of the first camera.
18. The system as claimed in claim 17 wherein the first and second camera, the mammal supporting means, the storage means, the display, the user interface and the registering means are operationally linked to a computer.